**REMARKS/ARGUMENTS** 

These remarks are made in response to the Office Action of April 25, 2008 (Office

Action). This response is concurrently filed with a Petition for Two-Month Extension of

Time. The Office is expressly authorized to charge the appropriate fees to Deposit

Account 50-0951. Claims 1, 3-11, 13-21, and 23-30 are currently pending. No new

matter has been added.

The Office Action objects to claims 21 and 23-30 for lack of support for the term

computer readable storage. Applicants respectfully disagree but in the interest of

advancing the prosecution, the specification has been amended based on the support

found in the claims, which should obviate this objection.

In the Office Action, Claims 1, 11, and 21 were rejected under 35 U.S.C. § 103(a)

as being anticipated by U.S. Patent No. 6,446,038 to Bayya et al. (hereinafter Bayya) in

view of U.S. Patent No. 7,164,771 to Treurniet, et al. (hereinafter Treurniet). Claims 1,

11 and 21 each include the features of recording a speaker's voice directly from a human,

generating a voice signal based on the speaker's voice, and processing the voice signal

using an auditory model. The Office Action concedes that Bayya does not disclose the

use of an auditory model but asserts that it would have been obvious to modify Bayya to

include this feature for the purpose of better estimating how the signal will be perceived.

Applicants respectfully assert that Bayya fails to disclose each of the above-described

features and teaches away from their use.

Bayya is directed towards evaluating signals sent over communications networks,

such as telephone systems. Bayya is very clear that its system is intended to only utilize

an output speech signal from such a network:

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It is thus a general object of the present invention to provide a new and improved method and system for objectively measuring speech quality based on an output speech signal only. (Bayya col. 1, lines

58-61).

The Bayya system only utilizes already corrupted output signals from such

communications networks because of a lack of access to input voice signals and a desire

to avoid using input-to-output measurements:

Many known algorithms base quality estimates on input-to-output measures. That is, speech quality is estimated by measuring the

distortion between an "input" and an "output" speech record, and

using regression to map the distortion values into estimated quality. However, in a realistic environment, access to a clean/uncorrupted

input signal is not possible. Therefore, objective measures should

be based only on the available corrupted output signal. Output-

based measures are useful in applications when we only know the received speech record and there is no way to know the source

speech record, for example, as in monitoring cellular telephone connections to ensure they maintain adequate performance. (Bayya

col. 1, lines 58-61)(emphasis added).

One of ordinary skill in the art would not modify Bayya to utilize input signals including

the claimed features of recording a speaker's voice directly from a human, generating a

voice signal based on the speaker's voice, and processing the input voice signal using an

auditory model, particularly where Bayya specifically states to utilize "only" corrupted

output signals with its system.

Moreover, Applicants respectfully submit that the methods of Treurniet are not

directly combinable with the methods in Bayya, and one of ordinary skill in the art would

not modify Bayya to process a voice signal based on an auditory model. In particular,

Treurniet does not disclose or suggest a system or method for evaluating a speech signal

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based on any type of speech reference vectors. Instead, Treurnient requires a reference

version of the speech being analyzed. That is, both the analyzed and target speech signal

in Treurniet are the same speech. (See, e.g., FIGs. 1, 2, 2B, and accompanying text.)

Such an assertion is further supported by Treurniet's references to comparing processed

and unprocessed signals. (See, e.g., Col. 2, lines 19-26; Col. 4, lines 35-39.)

Accordingly, the auditory models of Truerniet are not configured for evaluating quality

based on baseline reference vectors, but are instead configured to provide a measure of

differences in measures for the target voice signal.

In contrast, the claims recite the limitation that the analysis of the received speech

is based *not* on comparison of different versions of the same speech, but rather recite an

analysis based on identifying attributes of received speech. That is, once the received

speech is processed using an auditory model, specific features in the speech, not the

transmission, which are characteristic of the speaker and not of the speech, are identified

and measured. These identified characteristics, i.e. voice attributes, can then be

compared to an objective baseline model for voice attributes and a relative measure of the

quality of the speaker's voice can be provided, irrespective of the content of the speech or

the method or quality of the transmission. Thus, the method and system recited in the

claims can be used with any voice signal received from any speaker to determine a

measure of voice quality of the speaker.

Claims 3-5, 13-15, and 23-25 were rejected under 35 U.S.C. § 103(a) as being

unpatentable over Bayya in view of Treurniet in further view of Non-Patent Literature

"Some Waveform and Spectral Features of Vowel Roughness" by Deal, et al. (hereinafter

Deal). These claims depend from claims 1, 11 and 21, respectively. For the reasons

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described above, these claims are patentable over Bayya and Treurniet. Deal does not

make up for the deficiencies in the cited art.

Claims 6-10, 16-20, and 26-30 were rejected under 35 U.S.C. § 103(a) as being

unpatentable over Bayya in view of Treurniet in further view of Non-Patent Literature

"Acoustic Correlates of Breathy Vocal Quality" by Hillenbrand, et. al (hereinafter

Hillenbrand). These claims depend from claims 1, 11 and 21, respectively. For the

reasons described above, these claims are patentable over Bayya and Treurniet.

Hillenbrand does not make up for the deficiencies in the cited art.

CONCLUSION

Applicants believe that this application is now in full condition for allowance,

which action is respectfully requested. Applicants request that the Examiner call the

undersigned if clarification is needed on any matter within this Amendment, or if the

Examiner believes a telephone interview would expedite the prosecution of the subject

application to completion.

Respectfully submitted,

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